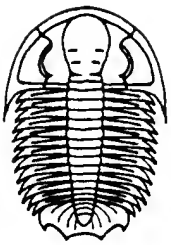
THE FOSSIL COLLECTOR

BULLETIN Nº 14 OCTOBER 1984



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THE FOSSIL COLLECTORS ASSOCIATION OF AUSTRALASIA

EDITORIAL

It is gratifying to see more Australian books being published on subjects relating to Palaeontology. In the last three Bulletins we have reviewed "Prehistoric Animals of Australia" (Bulletin 11); "What Fossil Plant is that?" and "Fossils of South Australia, Part 1 - Echinoids" (Bulletin 12); and "Vertebrate Zoogeography and Evolution in Australasia" and "Ancient Australia" (Bulletin 13). In this issue we review two further books just released by Methuen; "Australia's Prehistoric Animals" and "Australia's Prehistoric Plants". Let's hope the trend continues, as apart from technical papers, we have had to rely on overseas books for far too long.

If you think an Editor's life is easy, consider the simple little matter of the correct spelling of a generic name. Seems simple enough to check the main reference paper quoted in the article and accept the spelling used, particularly when the reference is from the Transactions of a Royal Society. But what if the Editor's Editor uses another reference and the spelling is different. That's when the fun starts, looking through other sources (for concensus!). End result: Spelling A - one technical paper with original reference and one book; Spelling B - 3 books and one bibliographic reference (by 'phone). Spelling B wins 4 to 2 as we couldn't wait to try and see if we could get the original paper describing the genus, which incidentally is in French.

In the last editorial we asked for information from members about projects being planned or carried out by Museums and Universities etc., who would benefit from a donation from the F.C.A.A.

To date we have had no response. Perhaps some of our professional friends might like to let us know of any suitable projects.

Finally we apologise for the delay in getting this Bulletin to print but had we met our original September deadline you would have been lucky to receive a 16 page issue instead of the 32 pages we eventually managed to scrape together. We dearly need articles for the next issue, which by the way,will complete our first five years.

Frank Holmes

GEOLOGICAL AND MINING MUSEUM SAVED

In Bulletin No. 11 we advised you that the Premier of New South Wales had in June 1982 threatened to close the Geological and Mining Museum in Sydney's Rocks area if it did not become self supporting within two years.

To help circumvent such a closure "The Friends of the Geological and Mining Museum (FOGAMM) Society" was formed in June 1983, our Association becoming an "Institutional Member" soon afterwards.

F.C.A.A. members will be pleased to learn that not only has future Government support now been guaranteed but also the Museum is to be expanded.

Details of this turn about in N.S.W. Government policy is given in a letter to us from the Department of Mineral Resources N.S.W.

Dear FOGAMM Member,

The founding and active participation and encouragement of the Friend's Society underlined the widespread support in the community for the work of the Museum.

This support constituted one of the main arguments advanced by the Department in its recent submission to the Premier which sought to reverse the 1982 recommendation that the Museum be closed.

I am pleased to tell you that the Premier has agreed to maintain the Government's support for the Museum. In addition, the Premier has approved in principle the proposal to expand the role and size of the Museum as a Bicentenary Project.

This decision gives us the ideal opportunity to get the message across to the community that the mining industry represented in the past, and continues to represent, an essential input to economic development and community well-being.

I would like to thank you for the support you have shown to the Museum, particularly as a member of FOGAMM.

I look forward to your continued support which will be invaluable if we are to achieve the exciting Bicentenary Project objective.

G. Rose
Secretary

Editor's Note: While primarily associated with Geology and Mining, the Museum has a collection of over 100,000 specimens of rocks, minerals and FOSSILS, and certainly justifies our continuing support.

FINANCES

Statement of finances as at 30th September, 1984.

Carried forward from previous year	$ 879.28
Add income 1st March to 30th Sept.	603.84
	$1483.12
Less expenditure 1st March to 30th Sept.	408.33
Balance in hand	$1074.79

Note: Statement excludes cost of this Bulletin.

QUESTION TIME

Way back in September, 1982 (Bulletin 8), Maureen Hill from Elizabeth Downs, South Australia, asked the question "What is the age and type of "Neolithic" marine fossils found on the west bank of the Horton River bridge, near Bingara, N.S.W.?"

After nearly two years we received an answer to the question from David Aslin our N.T., representative.

According to David, the Horton River bridge under question, occurs at Caroda, some 34 kms southwest of Bingara.

Geological maps of the Bingara area show Triassic sediments to the northwest. Carboniferous to the west and southwest and Devonian in a northsouth band through Bingara itself. It therefore appears fairly certain that the fossils referred to are of Carboniferous age probably part of the Burindi series.

During the early Carboniferous the sea extended from Newcastle through Roma in Queensland to Rockhampton. This excursion was a continuation of previous inundations during the Devonian Period.

The main fossil faunas of the Carboniferous in N.S.W. consist of brachiopods, polyzoa, gastropods, trilobites and corals, the brachiopods being the predominant form.

The word "Neolithic" used in the question actually means "of the late stone age". How it ever came to be used in the local tourist literature to describe this early Carboniferous fossil locality is anyones guess!

FAKE CHITONS

We have recently received a report from a palaeontologist with the New South Wales Government that "fossil" chitons purchased some years ago from a Shell Museum on the S.E. coast of N.S.W., are in fact fakes. He believes they are still on sale today to any unsuspecting customer.

The following quote from the letter should help members recognise these fakes if they come across them during their travels.

> "The fake fossils have been made to look very convincing by attaching them to fragments of local richly fossiliferous mudstone with the remains of brachiopods and other fossils in it. These shells have all suffered compression during the fossilisation process, whereas the "fossil" chitons are in high relief. In addition, the real fossils are preserved as moulds (negative relief), while the chitons have the shape of the original specimen (positive relief). This is because the fakes have been prepared by making a master mould of a modern chiton. Let the buyer beware!"

Editor's Note: Chitons are members of the Class Amphineura and range from the Late Cambrian to Recent.

These primitive marine molluscs live in the littoral (between high and low tide) and sub-littoral zones and are usually found clinging fast to the surface of a rock by means of their foot. They have an evenly rounded elliptical outline and are characterised by an encircling flexible girdle, nude or ornamented with spicules, spines, bristles or chitonous protuberances. No head is visible from the dorsal side and there are no tentacles or other projections beyond the periphery. The central part of the back consists of a shell in the form of eight articulating pieces with joints running transverse to the axis of the body.

Chitons are extremely rare as fossils.

BOOK REVIEWS

A Pictorial Guide to Fossils by Gerard Case.
Van Nostrand-Reinhold, $US29.95.

Gerard Case the author of A Pictorial Guide to Fossils is a man who has distinguished himself as a self-taught researcher and specialist on fossil sharks. Thirteen hundred very good photos and line drawings make this volume a virtual pictorial index of

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BOOK REVIEWS - A Pictorial Guide to Fossils (Cont'd).

many fossil genera. Utilising varying angles and different photographic systems, Mr Case often offers multiple perspectives on the same fossil specimen for comparison. As a photographic album, the work is to be warmly recommended to all. Aside from these illustrations, the plan of the book is by chapter, to detail the various genera for each epoch of a phyllum's existence. These listings are wide but not comprehensive. Some chapters such as that dealing with sharks are united by commentary on the function and form of the particular phyllum but in general there is a feeling that further texts of this nature elsewhere in the book would have given the reader a better understanding of the pictures. A good index adds to the books value along with a broad list of citations and the all important fact that its physical character and construction will give many years if service.

Reviewed by Edward Hennessey, 2719 Tyler St., Long Beach, California, U.S.A. 90810.

Editor's Note: Copies of this book are, we understand, now available in Australia.

Australia's Prehistoric Plants and their Environment
by Mary E. White.
Australia's Prehistoric Animals by Peter Murray.

These two books, part of a series of six published under the "Amazing Australia" title, have just been released by Methuen Australia.

The first, the story of Australia's Prehistoric Plants contains a simple introduction of the beginning of life on earth, what fossils are and how they are formed before leading into the story of plant evolution in Australia from the first land plants in the Silurian to the rise of our near unique flora in the middle Tertiary. The book is beautifully illustrated with coloured sketches, diagrams and panoramic views of palaeobotanical environments as well as numerous photos of fossil plants and their associated fauna.

One of the highlights of the book is a double page illustrated chart of the evolution of plants from the Proterozoic to the present day.

The book concludes with a short section on collecting plant fossils and a brief index.

If there is to be any criticism, it is that the book is fairly short (only 32 pages) and the map "Where fossils are found in Australia" is somewhat confusing in that one might expect the few scattered locations shown, would be those where fossil plants are found, however, this is not necessarily the case - reference Beetle Creek near Mt. Isa.

The second book about our prehistoric vertebrates follows a similar format to the first, leading the reader through the fossil record and evolution of vertebrates with the exception of marine animals, from the age of amphibians to the late Pleistocene. Naturally the history of marsupials is given prominence with numerous coloured illustrations and diagrams. Three double page panoramas show life and the environment which existed in the Miocene, Pliocene and Pleistocene. Unfortunately, you have to turn to a large black and white fold out at the front of the book to find a key to the genera of animals shown in the panoramas, this can be frustrating.

While the books and the series are designed for upper primary to mid secondary school children studying the basic sciences they will be equally of value to the beginner of any age who is interested in learning about Australia's often unique fossil plants and vertebrate animals.

Mary White is a Research Associate in Palaeobotany with the Australian Museum, Sydney.

Dr Peter Murray is Curator of Palaeoanthropology and Palaeobiology at the Museums and Art Galleries of the Northern Territory, Darwin.

Both books were written in consultation with Dr. Michael Archer, University of New South Wales and Dr. Alex Ritchie and Robert Jones of the Australian Museum, Sydney.

Australia's Prehistoric Plants and Australia's Prehistoric Animals published by Methuen Australia Pty., Ltd., 44 Waterloo Road, North Ryde, N.S.W. 1984.

Recommended Retail Price $9.95 each.

Review by Frank Holmes

VERTEBRATE ZOOGEOGRAPHY & EVOLUTION IN AUSTRALASIA

(Animals in Space and Time) Edited by Michael Archer & Georgina Clayton.

In Bulletin No.13 (June 1984), we included a synopsis of the contents of the above book and details of what we believed to be the purchase price, as at that time we had been unable to obtain a copy.

Unfortunately we were misinformed and apologise to any members who have been inconvenienced.

The actual cost of the book is;-

HARD COVER	$55.00 plus $10.00 postage.
SOFT COVER	$45.00 " " "

Normally when writing a review it is, to say the least, customary to have read the book. In the case of "Vertebrate Zoogeography and Evolution in Australia" this constitutes quite a problem, as the book is printed in a 215 x 295 (8½" x 11½") format, contains 1,173 pages excluding the index and weighs just over 3 kgs.

The Six sections which the book contains, in addition to the "Background" (Introductory) section, cover the five primary vertebrate groups and special information on New Zealand, New Guinea and Lord Howe Island vertebrates. In all there are 90 articles and checklists crammed with information, diagrams, anatomical drawings, photographs and humorous drawings which will keep the vertebrate enthusiast enthralled for months - even years.

It is indeed a book equally of value to the amateur and the professional and should be in every reference library whether public or private. In any other area of Science one could be expected to pay around $150 for a comparable volume.

"Vertebrate Zoogeography and Evolution in Australasia" is only available from the publishers :-

HESPERIAN PRESS, 65 OATS STREET, CARLISLE, WESTERN AUSTRALIA, 6101.

S T O P P R E S S - FIRST EVER WONAMBI LOWER JAW FOUND?

While sieving material from Naracoorte, John Barrie has retrieved what are believed to be two lower jaws from the giant snake Wonambi. If confirmed they will be the first ever mandibles of Wonambi found.

See Article on Page 22.

IN THE NEWS

FOSSIL MARSUPIAL DISCOVERED IN AFRICA

Evidence of marsupials has been found in Africa for the first time. French and American teams have independently described specimens from Algeria and Egypt respectively.

These finds give a new insight into the history of marsupials and add to the longstanding debate about how these pouched mammals achieved their present distribution which is restricted to Australasia and the Americas.

The first specimen found in early Eocene rocks (about 55 million years old) in Algeria, is a molar tooth from the upper jaw. The pattern of ridges, or cusps, on the biting surface clearly shows that the tooth is from a marsupial, more precisely a didelphid (opossum).

Didelphids are considered to be the most ancient living family and the least specialised of marsupials. Among their distinguishing features are an inturned inner angular process on their lower jaws, three premolar and four molar teeth.

A second find in northern Egypt consists of three jaw fragments from Oligocene rocks approximately 32 million years old.

The earliest known fossil marsupials come from the late Cretaceous (84-67 million years ago) of North America where remains are relatively diverse, about 30 species being recorded from Alberta, Montana and Wyoming. A few marsupials have also been reported from the late Cretaceous of Peru and recently jaws and teeth have been found in rocks of similar age in Bolivia. There is no other record of marsupials known from this period which leads to the speculation that they may have arisen and radiated from the western portion of North America or from some part of South America.

Didelphid marsupials spread to Europe in the subsequent Tertiary Period, where they survived until the middle Miocene about 15 million years ago.

In North America they also became extinct in the Miocene but subsequently reinvaded from South America.

Among alternative ideas about the radiation of the marsupials

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FOSSIL MARSUPIAL DISCOVERED IN AFRICA (Cont'd).

is the supposition that they arose in Australia, where they are most diverse today, and migrated across Antarctica into South America and then North America and Europe. This would have had to have happened in the Cretaceous in order to explain the diversity of late Cretaceous marsupials in North America.

Wherever they arose, marsupials had to cross a broad sea barrier between North and South America because there was no direct land connection in the Cretaceous. It has been suggested that they went via Africa, however, the recent fossil discoveries lend no particular support to this idea because of their Tertiary age.

New Scientist 26th April, 1984.

AN AUSSIE BIG FOOT!

Queensland Museum experts are piecing together a jig saw of bones from one of the biggest herbivores that ever lived in Australia.

The fossilized bones, found several years ago by a grazier near Muttaburra, 120 km north-east of Longreach, Western Queensland, belong to a 100 million year old dinosaur which was about 10 metres long.

Since the original discovery, museum teams have gathered pieces from an area 30 metres square, catalogued them, made casts and then assembled their evidence.

Museum Director, Dr. Alan Bartholomai said the remains of the dinosaur, which has been named Muttaburrasaurus langdoni, were amongst the best preserved in Australia.

Finding dinosaur bones in Queensland's west was no special art according to Dr. Bartholomai as there were so few rocks that each could be inspected - some proving to be fossilized bones.

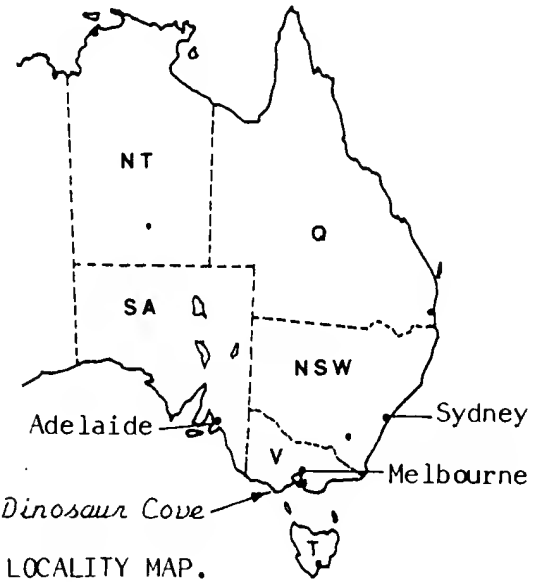
The recovery and preparation of the fossils for public display when the new Queensland Museum is opened in 1986 has been sponsored by Kellogg Australia which recently ran a promotion urging children to support a dig for dinosaurs.

The Melbourne Sun, August 28th,1984.

DINOSAURS IN VICTORIA - an expedition to Dinosaur Cove

During February, 1984, an expedition from the Museum of Victoria confirmed the existence of a palaeochannel deposit on the shore platform of a small cove about 13 kilometres northwest of Cape Otway, on the south coast of Victoria. This deposit, at what is now known as Dinosaur Cove was considered to be rich enough in dinosaur bones to warrant extensive excavation. In addition, a second palaeochannel deposit almost as rich in fossils, was discovered and exploited at Dinosaur Cove West.

Both deposits are in the Otway Group and are Aptian or Albian age, late Early Cretaceous, about 110 million years old.



LOCALITY MAP.

The first dinosaur specimen found in Victoria, an ungual phalange (claw) of a carnivorous dinosaur, was discovered near Inverloch just after the turn of the century (Woodward 1906a). In 1978, Timothy F. Flannery began a concerted effort to locate additional dinosaur remains in Cretaceous exposures on the shore platforms to the west of Inverloch. This work on the flanks of the Strzelecki Ranges demonstrated that the fossil remains of dinosaurs and other terrestrial vertebrates could be found in those rocks if enough effort was put into searching for specimens.

Recognising that Cretaceous rocks similar to those in the Strzelecki Ranges occur on the shore platforms flanking the Otway Ranges, an attempt was made to locate fossil vertebrates in this latter area. Beginning at Eastern View, 52 kms north east of Cape Otway in 1979, all the accessible shore platform outcrops of the Otway Group were examined in a reconnaissance survey that extended as far as Pebble Point, approx., 32 kms west north west of the Cape. Significant fossil concentrations were found at four sites as a result of this work. Within three of the sites, the fossils were so widely scattered that each excavation resulted in only the one specimen being found. This suggested that it was not practical at these sites to locate

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DINOSAURS IN VICTORIA - an expedition to Dinosaur Cove (CONT.)

additional fossils by systematically digging through the rock. However, at the fourth site (Dinosaur Cove), the fossils were found concentrated in a small channel deposit where digging did result in the discovery of fossils that were not initially visible on the surface.

This fossiliferous channel deposit represented the course of a small stream that had flowed 110 million years ago and subsequently became filled with sediment which included sand, layers of plant material, clumps of clay, and occasional rock, and an even more occasional fossil bone. Presumably, the bones had accumulated in the bottom of the stream just like the other particles of matter found there. No groups of associated bones or skeletons were found so it appears likely that the animals from which they came died elsewhere. After the carcases had rotted, the bones of the skeletons were transported individually, some to eventually become buried in the channel at Dinosaur Cove and preserved as fossils. In the intervening 110 million years, the initially soft sediments that filled the stream channel became hardened into rock and the rock uplifted as part of the Otway Ranges. Finally, the ancient stream channel was exposed by the erosion of the sea.

Once the readily accessible rock at Dinosaur Cove was excavated, there were two courses of action available; the first to abandon the site; the second to tunnel into the cliff where the channel deposit extended and attempt to determine the nature and extent of this fossiliferous unit. Despite the anticipated difficulties, the latter course was chosen because no other Cretaceous site in Australia was known that consistently yielded the remains of small, terrestrial vertebrates. If this site could be shown to be of such a nature, then there would be a basis at some future time to make a major effort to exploit the locality.

In addition to determining whether or not the locality was rich enough to warrant further work, other objectives of the pilot excavation were to test out procedures for doing the actual digging as well as collecting the fossils that were found.

Once the decision was taken to attempt to follow the channel deposit back into the cliff, it was realised that a whole series of unfamiliar problems would be encountered. Logistically, it was obviously going to be a most difficult excavation, primarily because normal access to the shore platform where the palaeochannel was exposed is by a foot track that descends 80 metres

over a walking distance of 250 metres and secondly because of the elaborate mining equipment necessary to dig an underground tunnel.

In order to obtain advice and help to solve these problems, a large number of organisations and individuals were contacted. Prominent among these were the Friends of the Museum of Victoria, the Council of the Museum of Victoria, the National Geographic Society, Atlas Copco Ltd., Telecom, the Surf Life Saving Association, Department of Minerals and Energy, Mr. John McAllster, and Mr. Peter Mokos.

Prior to the beginning of the actual excavation, an advanced party arrived to set up camp, put in telephone lines, electrical lines and generators, a compressor with its attendant pneumatic hoses and finally construct a cookhouse with built in shelves, stove, oven, griddle, copper and refrigerator. Atlas Copco delivered a truck load of mining equipment to be used for the excavation including an air compressor with hoses, rock drills and jack hammers, as well as 15 drums of diesel fuel and one of standard petrol.

On 11th February, a helicopter from the Surf Life Saving Assoc., transported the bulk of the equipment needed to carryout the excavation from the campsite down to the shore platform on Dinosaur Cove. Because there was more equipment than was anticipated, the helicopter ran short of fuel. Fortunately the helicopter from ABC television channel 2 was also at the site and enough fuel could be transferred to complete the mission. The portico over what was to become the entrance to the excavation was built the same day.

Under the guidance of Mr. McAllster actual quarrying at the site began the following day. Unfortunately, there were several difficulties with the hired mining equipment and very little progress was made for the next five days. Finally a workable arrangement was achieved by both hiring substitute equipment and purchasing additional items.

During the next six days the excavation penetrated 2 metres into the cliff. At this point, it was apparent that the palaeostream channel had been crossed. Bones and clay galls had become less frequent and the channel deposit thinner. The direction of the palaeochannel then became evident resulting in the direction of the excavation being turned 90 degrees and extended for a further distance of 2½ metres along the axis of

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DINOSAURS IN VICTORIA - an expedition to Dinosaur Cove (Cont'd).

the channel. Presumably, the deeper part of the palaeochannel, the side closer to the surface where the excavation began, was the outside of a bend. There the water flowed more swiftly and the stream was capable of transporting clay galls, occasional stones, and even rarer bones to that point. On the side of the stream where the deepest part of the excavation reached, the flow of water had only been strong enough to bring in sand and floating plant matter.

From the deeper part of this palaeostream channel, about sixty fossil bones and bone fragments were recovered. Most will not be scientifically valuable as they will probably turn out to be merely waterworn bits of bone. However, preparation of only a few specimens has shown that some are limb bones of small ornithopod dinosaurs. When all the rock is removed from the specimens, more dinosaur and other tetrapods will undoubtedly be recognised.

Another fossiliferous palaeochannel deposit, dubbed Dinosaur Cove West, was found by Dr. Pat.Rich on the west side of Dinosaur Cove, about 200 metres from the original locality. The channel of Dinosaur Cove West is 14 metres wide with the axis perpendicular to the cliff face. It was possible to collect a large quantity of rock at this site without going underground. Although the fossil bones were not as concentrated at Dinosaur Cove West, about 40 bones or bone fragments were found. The most interesting aspect of these specimens is that they include bones of animals as small as the living brush-tail possum. This is in the size range that Cretaceous mammals and birds might reasonably be expected to be. As far as is known there is no other site in Australia between the late Triassic and late Oligocene where the bones of terrestrial vertebrates in that size range are sufficiently concentrated to warrant systematic excavation. Unfortunately, the remains in this size range are in the minority, most bones being of small dinosaurs, turtles and crocodiles. Amongst the specimens in this category is an isolated tooth of a small ornithopod dinosaur. This tooth may be conspecific with two other specimens of a small ornithopod from Point Lewis, about 5 kms to the northeast of Cape Otway.

Finally, 15 days after the equipment had been taken down to the shore platform, the Surf Lifesaving Association helicopter returned to remove the bulk of the tools used in the course

of the excavation along with three tonnes of rock from the two channel deposit.

Inspite of early problems associated with the proper functioning of the mining equipment and an abnormal high tide which had swept away the protective portico and hurled tools and hessian bags filled with rock up to 30 metres the night before the final days excavation, the expedition proved a great success, not only for the organizers and leaders but the volunteer field crew which numbered over sixty.

In conclusion the expedition to Dinosaur Cove confirmed that there is a concentration of fossil bones, particularly those of small dinosaurs. As a result of this work, much information was gained which will enable future excavation at Dinosaur Cove to be carried out in a far more efficient manner. Particularly important is the fact that there are now a group of people with a variety of technical backgrounds who have had firsthand experience with digging at this site.

The discovery of the new palaeochannel at Dinosaur Cove West suggests that the area between Marengo and Jahanna Beach should be reprospected in much greater detail than was done during the initial reconnaissance of 1979-1980. Such reprospecting may yield additional rich deposits that were missed in that initial effort.

Article prepared from material provided by Dr. Thomas H. Rich, Curator of Vertebrate Fossils, Museum of Victoria, 285-321 Russell Street, Melbourne, Victoria, 3000.

Editor's Note: Another expedition to Dinosaur Cove is planned for February/March 1985. Anyone interested in helping in this exciting work should contact Dr. Rich at the above address.

"THE MOSASAUR"

In January 1983, the Delaware Valley Paleontological Society, a non-profit making association of amateur and professional paleontologists, published the first issue of a new journal known as "The Mosasaur" (refer Bulletin 11, page 8).

We have just been advised by their Business Manager, that Volume 2 is being published in September, 1984 and can be obtained at a reduced rate for individuals at $US7.00 per copy -overseas airmail postage extra. Institutional rate $US14.00 per copy.

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"THE MOSASAUR" (Cont'd).

Members interested in purchasing "The Mosasaur" Volume 2, should send a bank draft or international money order payable in U.S. dollars to the Delaware Valley Paleontological Society, C/o., William B. Gallagher, Department of Geology D4, University of Pennsylvania, 240S, 33rd St., Philadelphia, PA 19104, U.S.A.

Note: Details of the contents of Volume 2 can be obtained from the Secretary F.C.A.A.

OPALIZED PLESIOSAUR FINDS AN AUSTRALIAN HOME

In October 1983, the national press reported the find by two opal miners of fossilized bones from a 100 million year old marine dinosaur. (Refer Bulletin 12, page 4).

The miners requested help from the South Australian Museum, however, in the Curator's absence overseas, little could be done except to ask Richard Jenkins from the University of Adelaide to assess the situation. Following this, Tom Rich (Museum of Victoria) volunteered to help, and with four visiting Chinese palaeontologists and two staff members from the South Australian Museum, spent several gruelling days in temperatures up to 50°C excavating the skeleton of what proved to be an opalized Plesiosaur approximately 50% complete.

After protracted negotiations, the miner John St. Alban, donated the specimen to the Museum under the "Taxation Incentives for the Arts Scheme" administered by the Department of Home Affairs and Environment. The skeleton, believed to be valued at about $100,000, is now slowly being prepared.

"nomen nudum" August 1984.

BIVALVES (Part 3)
by G.W. Kendrick and L.C. Schekkerman

On the following pages we conclude our illustrated synopsis of the Bivalvia with further genera from the Order Veneroida followed by genera belonging to the Orders Myoida and Hippuritoida and the Subclass Anomalodesmata, Order Pholadomyoida.

Figured in the three part series are 69 representative genera from 52 more or less common families, nearly all of which occur in Australia.

ORDER VENEROIDA (Cont'd)

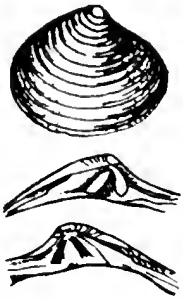


Fig.46. *Astarte*, x2·5
Juras.- Rec.

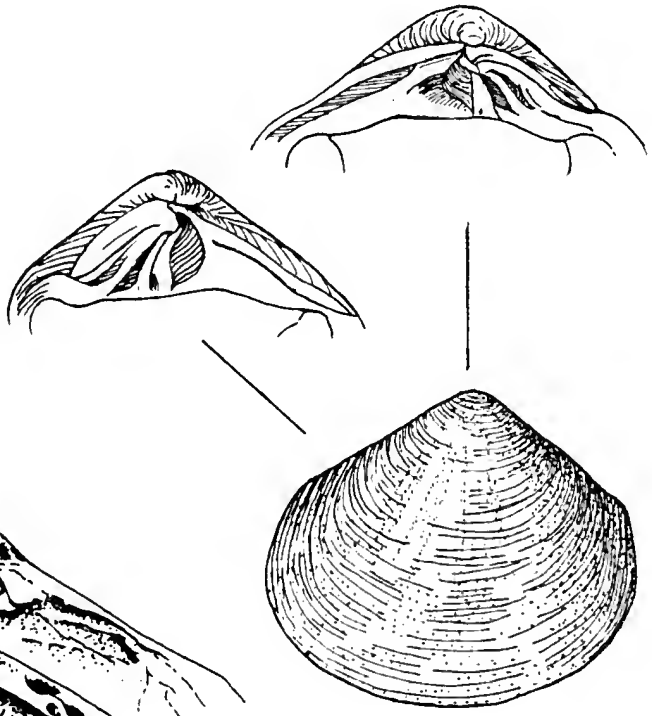


Fig.47. *Eucrassatella*, x0·7, Paleoc.- Recent.

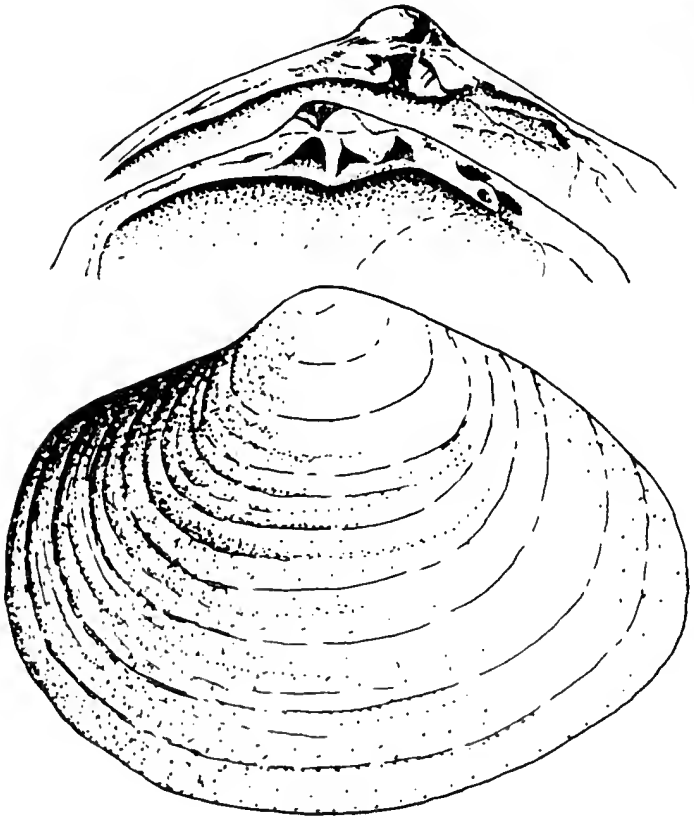


Fig.48. *Onestia*, xl, Cretaceous.

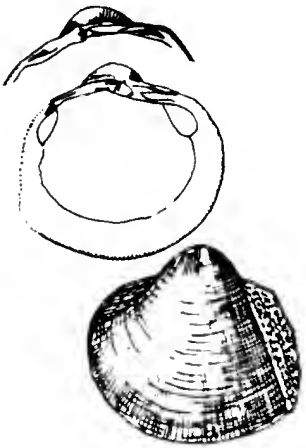


Fig.49. *Nemocardium*, xl
Cret.- Recent.

Cont...

BIVALVES (Cont'd)

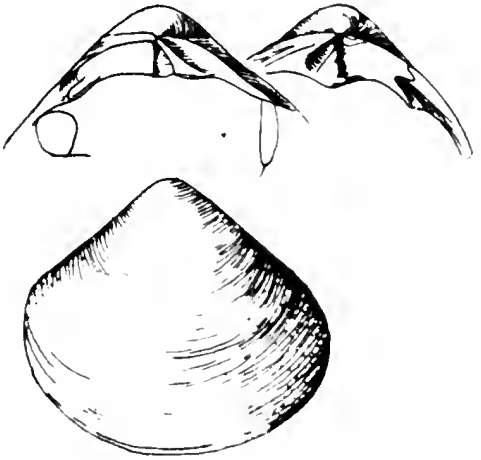


Fig.50. *Lahillia*, x0·5
Cret.- Mioc.

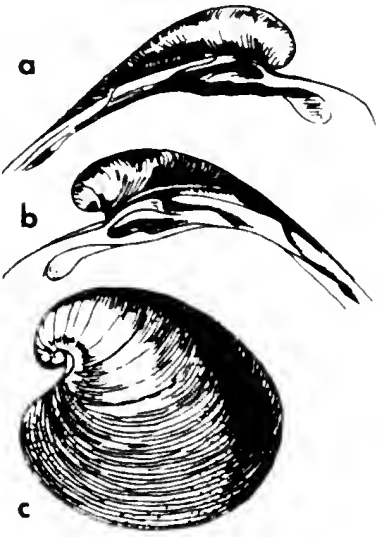


Fig.51. *Glossus*,
a.& b. x1,
c. x0·5,
Paleoc.- Rec.

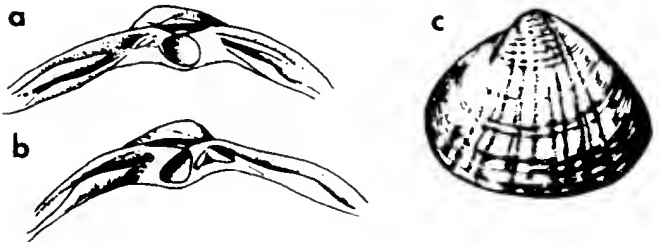


Fig.52. *Mactra*, a.& b. x1, c. x0·5,
Eocene - Recent.

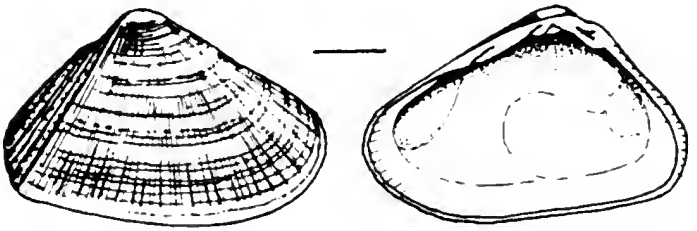


Fig.54. *Donax*, x1, Eocene - Rec.

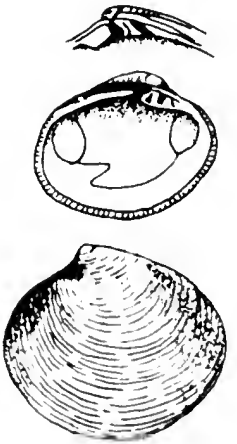


Fig.53 *Dosinia*, x0·5
Eocene - Rec.

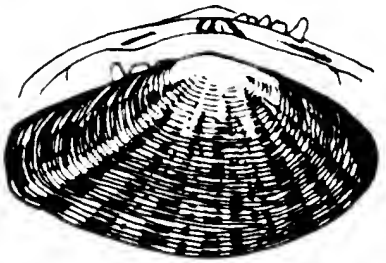


Fig.55. *Tellinella*, xl, Oligoc.- Rec.

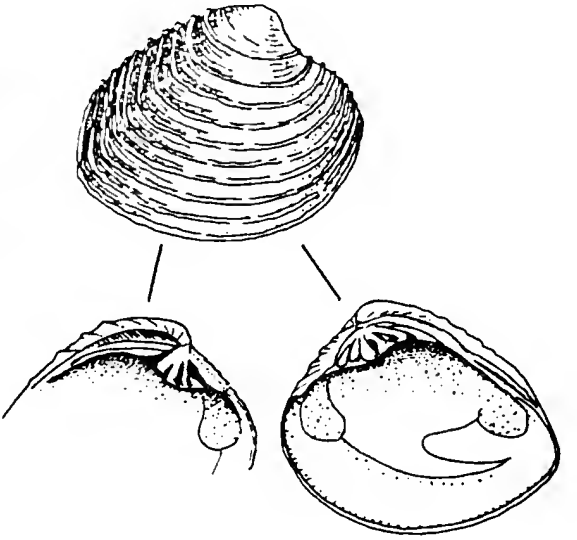


Fig.56. *Bassina*, xl, Oligoc.- Rec.

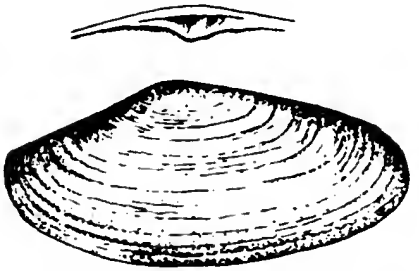


Fig.57. *Tatella*, xl, Cretaceous.

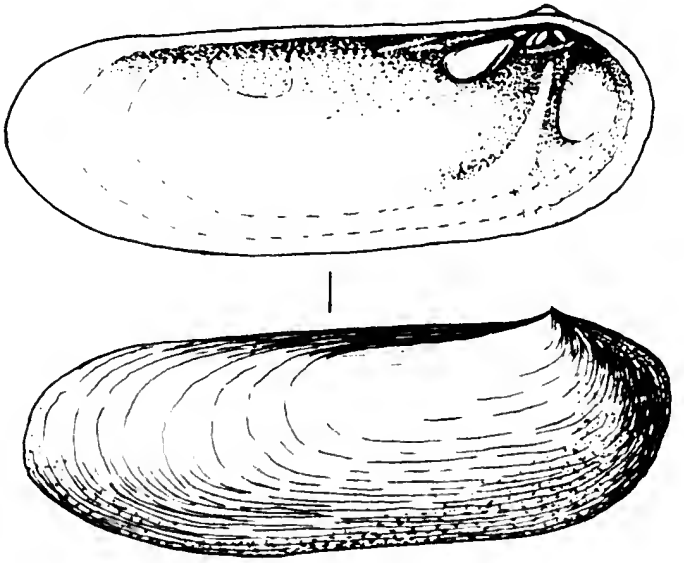


Fig.59. *Zenatiopsis*, xl, Mioc.- Pleistoc.

Fig.58. *Tancredia*, xl, Trias.- Cretaceous.

Cont...

BIVALVES (Cont'd)

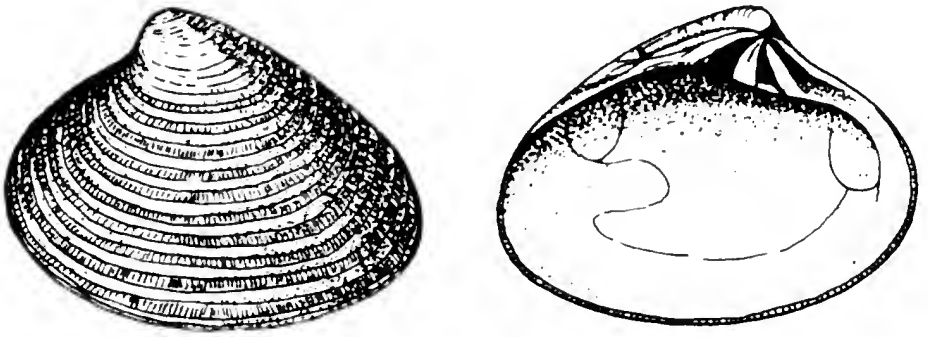


Fig.60. *Tawera*, x0·5, Oligoc.- Rec.

ORDER MYOIDA

Shells of variable form, usually inequilateral, sometimes inequivalve; one cardinal tooth in each valve, or lacking teeth; lunule and escutcheon absent. Burrowers with well-developed siphons. 10 families. Carboniferous - Recent.

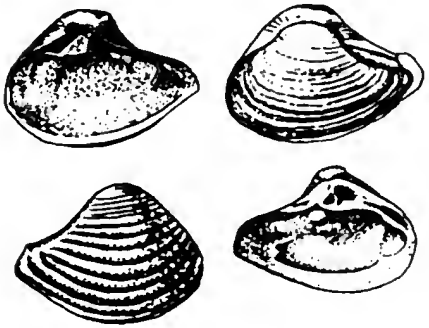
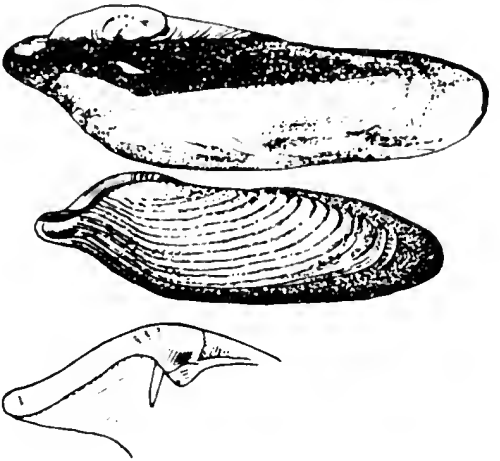


Fig.61. *Corbula*, x1, Cret.- Rec.



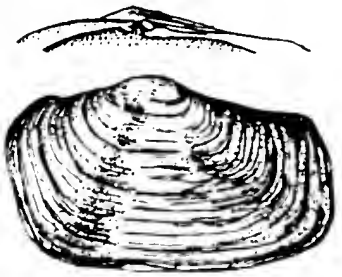


Fig.62. (above). *Pholas*, x0·5, Cret.- Rec.

Fig.63. (left). *Panopea*, x0·5, Cret.- Rec.

ORDER HIPPURITOIDA

Shells very thick, often inequivalve with massive hinges; form frequently aberrant, resembling solitary corals; some attached by lower valve, which may be conical or gyrate; upper valve resembles an operculum. Megalodonts (primitive) and rudists (advanced, often reef-forming). Eight families. Silurian - Cretaceous.

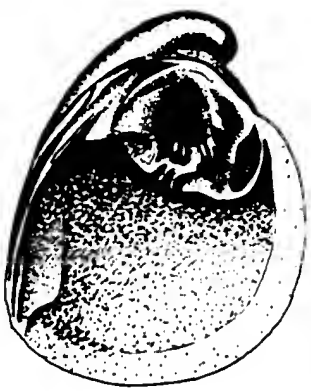


Fig.64. *Megalodon*, xl, Devon.-Triassic.

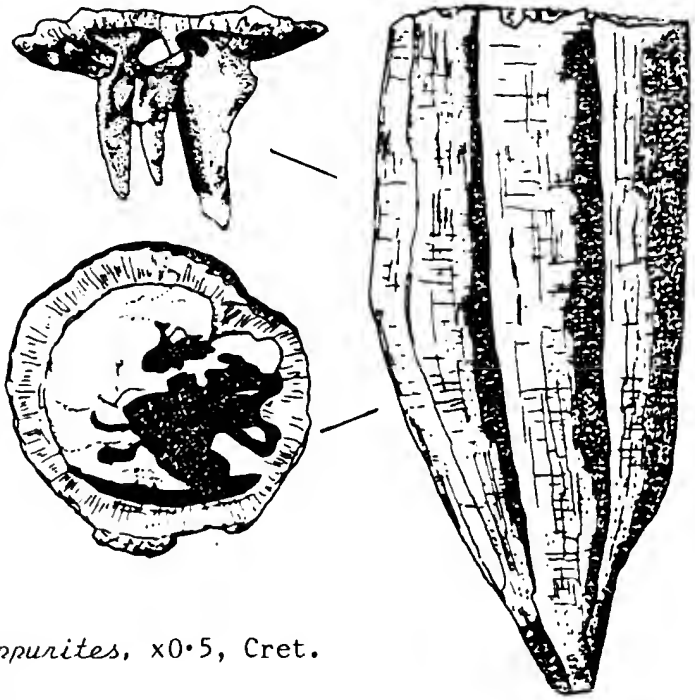


Fig.65. (right). *Hippurites*, x0·5, Cret.

6. SUBCLASS ANOMALODESMATA

Shell of variable form, mostly equivalve, often thin, gaping; hinge margin thickened; hinge weak, with one or no cardinal teeth and no laterals; some nacreous; sculpture reduced, often with radial rows of small tubercles. Marine. One Order. Ordovician - Recent.

ORDER PHOLADOMYOIDA

Characters of the Subclass. 21 families. Ordovician - Recent.

Cont...

BIVALVES (Cont'd) - ORDER PHOLADOMYOIDA.

Fig.66. *Pholadomya*, x1, Triassic - Recent.

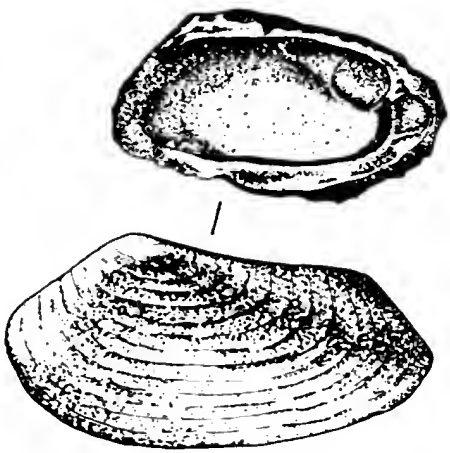


Fig.67. *Myonia*, x1, Carb.- Perm.

Fig.68. *Brechites*, x0·5, Olig. - Recent.

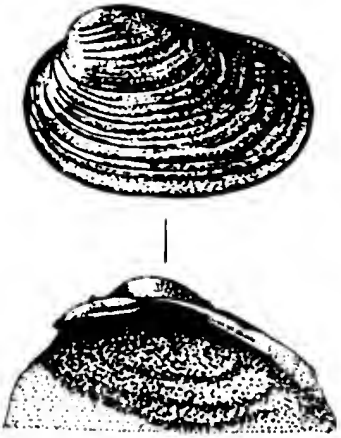


Fig.69. *Edmondia*, x1, Carb.

WONAMBI - A GIANT EXTINCT SNAKE by J. Barrie

Early in September 1984, accompanied by interstate friends, I was lucky enough to unearth a large section of jaw from a giant snake while searching for Pleistocene vertebrate fossils at Naracoorte, South Australia. During the weekend dig several snake vertebrae, ribs and a second but smaller jaw section were also recovered.

Both jaw sections appear to be maxilla (upper jaws), the larger containing 13 recurved teeth (Fig.1), the other, five. Based primarily on the vertebrae the specimens found appear consistent with the description of Wonambi naracoortensis Smith 1976, a giant extinct python described from the Fossil Chamber, Victoria Cave, Naracoorte.

The vertebrae of this species closely resemble Madtsoia bai from the Paleocene-Eocene of Patagonia, and Madtsoia madagascariensis from the Cretaceous of Madagascar. Smith estimated Wonambi body length at approx.5 metres. A vertebra illustrated by Smith in her 1976 paper scales 37 mm wide compared with the largest specimen we collected measuring 45.5 mm. Ribs placed against this latter specimen indicate a reptile of approximately 200 mm diameter. In addition the fragment of left maxilla associated with the vertebrae from the Victoria Cave has teeth 7 mm long compared with 8.5 mm in our large specimen. Could the new material infer a body length in excess of 5 metres?

Wonambi differs from extant Aust. Boids in lacking accessory processes beneath the prezygapophyses, in possessing weak sub-central ridges and paracotylar foramina, and exhibiting a slight posterior slope to the nueral spine.

The holotype of the species SAM P16168 is a dorsal vertebra collected from the Fossil Chamber, Victoria Cave less than 30 cms below the surface of the cave earth

"Wonambi" is derived from an aboriginal name for the mythical rainbow serpent (Elkin 1964).

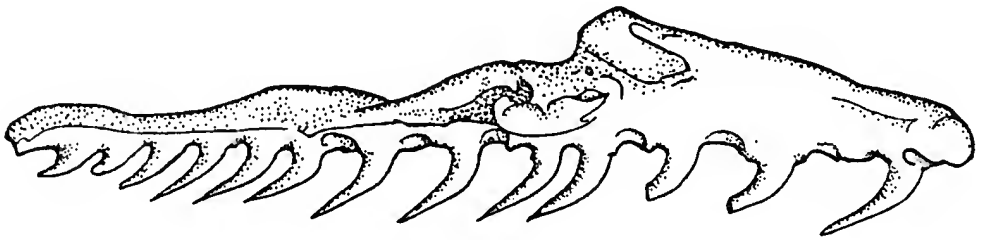


Fig.1. *Wonambi naracoortensis.* Lingual view of maxilla, x1·63.

It is of note that some fundamental diagnosis can be made by examining vertebrae of various animals as illustrated in the following figures.

Cont...

WONAMBI - A GIANT EXTINCT SNAKE (Cont'd).

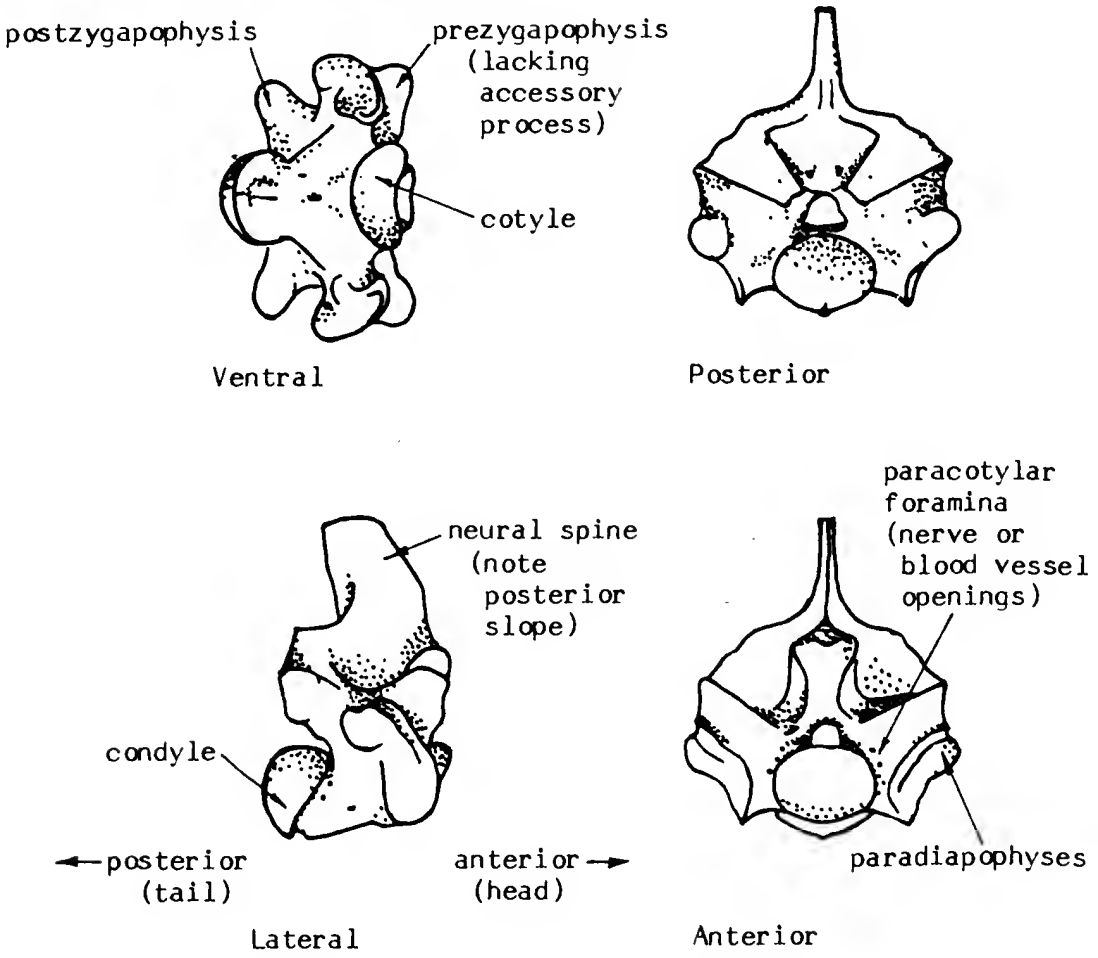
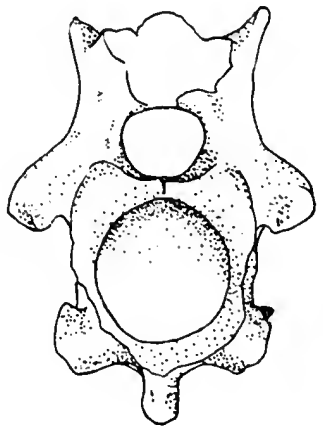
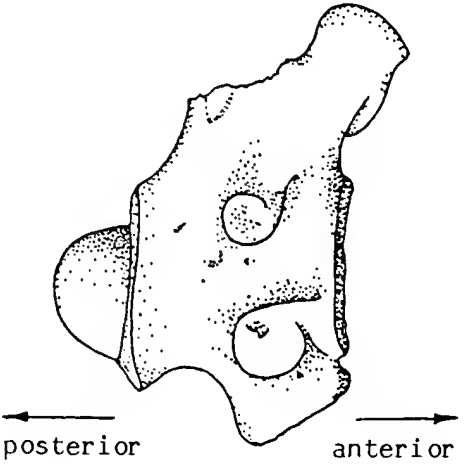


Fig.2. *Wonambi naracoortensis*, Vertebra xl. Specimen from Naracoorte, South Australia.

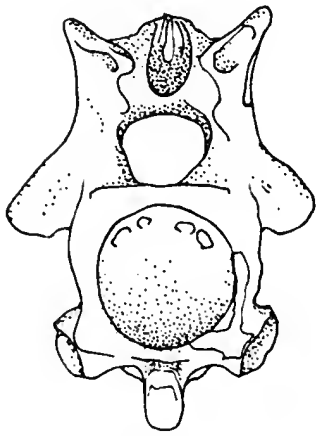
The vertebrae of Wonambi naracoortensis have very globular 'ball and socket' joints held into alignment by close fitting prezygapophyses and postzygapophyses. This prevents almost all rotation between one vertebra and the next, but allows a high degree of articulation sideways, estimated at 20 degrees to L & R., almost 20 deg., downwards and approx. 12 degrees vertically per joint. These measurements were taken from the only vertebrae that appear to occlude. Variations may well exist in joints posterior and anterior to those measured and a considerable limiting factor could occur in real life due to tissue structures.



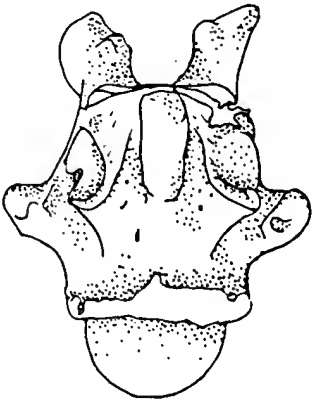
Posterior



Lateral



Anterior



Ventral

Fig.3. Crocodile, (*Pallimnarchus sp?*). Vertebra x0·7.
Specimen from Chinchilla, Queensland.

Reptile vertebra from the crocodile Pallimnarchus (?), probably a cervical vertebra based on the size of spinal cord. Note again the well rounded 'ball and socket' joint, but in this species less restricted in rotation. The specimen illustrated is from Chinchilla, Queensland, and has been compared with crocodiles on display in the Queensland Museum.

Cont...

WONAMBI - A GIANT EXTINCT SNAKE (Cont'd)

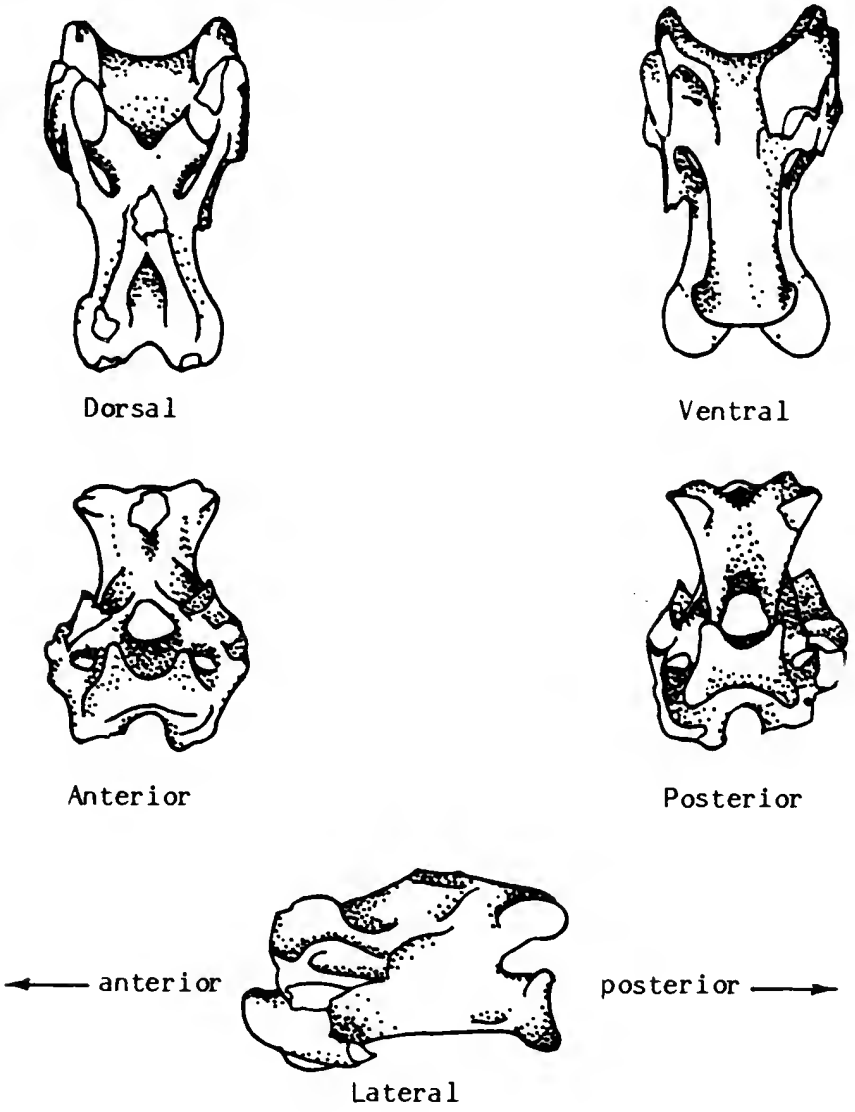
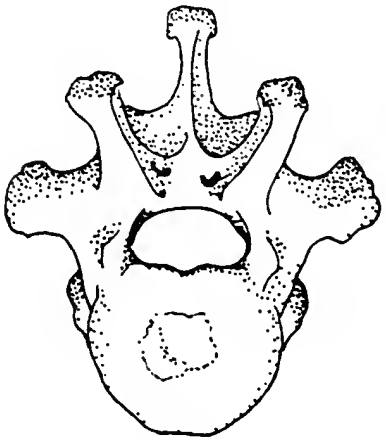
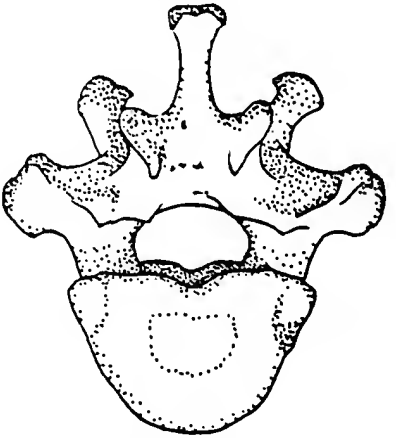
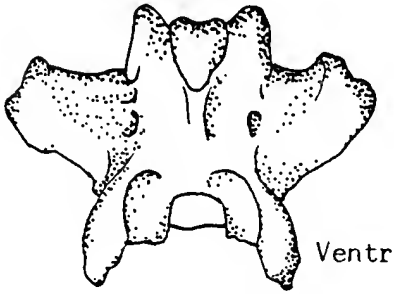


Fig.4. Cervical vertebra of large bird about the size of a Pelican or Goose, xl. Specimen from Naracoorte, S. Aust.

Evolved from reptilian ancestors, the birds have evolved a distinctly unique vertebrae. The condyles being 'saddle' shaped to enable great flexibility in all directions. This unidentified specimen is possibly from a pelican or goose-like bird.







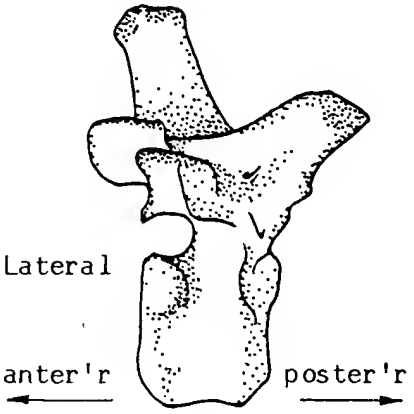


Fig.5. Mammalian vertebra belonging to Thylacoleo carnifex, x0·83. The distinctive rounded condyle enabled a reasonable degree of articulation in this most unusual marsupial. Specimen from Naracoorte, S. Aust.

If Wonambi naracoortensis is, as its appearance suggests, closely related to other species of Madtsoiinae, then it is most likely that it colonised Australia before this continent drifted from Antarctica.

Being found in Pleistocene deposits, W.naracoortensis survived much longer than other madtsoiines, which were extinct before the Miocene.

References

Quirk, S. & Archer M (eds.) "Prehistoric Animals of Australia". Australian Museum 1983.

Smith M.J. (1976) Small fossil vertebrates from Victoria Cave, Naracoorte, South Australia, IV Reptiles, Trans. R. Soc., S. Aust. 100(1), pp 39-51.

Cont...

PALAEONTOLOGICAL COLLECTIONS IN AUSTRALIA

Published in the current issue of "*nomen nudum*" (August 1984) is the result of a survey of palaeontological resources in institutional collections in Australia.

Compiled as part of a wider programme of compilation for the World Directory of Palaeontological Collections, the survey lists among other things, the estimated number of specimens housed in each collection and the percentages catalogued, the method of curation, in house publication outlets, facilities for visiting Palaeontologists and details of published type catalogues.

Apart from the large number of specimens not catalogued, the most disturbing factor revealed by the survey is the lack of a published type catalogue for many of the collections.

The twenty-five organisations in Australia which have fossil collections, hold between them in excess of five million specimens. The largest collections, those comprising one million or more specimens, are those of the Bureau of Mineral Resources, Canberra, the Museum of Victoria and the Western Australian Museum.

For the guidance of members we have listed the organisations in Australia that house fossil collections, together with the estimated number of specimens held.

THE AUSTRALIAN MUSEUM
Division of Earth Sciences (Palaeontology)
6-8 College St., Sydney, N.S.W. 2000. Tel.(02) 339 8111

PERSONS IN CHARGE: A Ritchie (Palaeontologist); R.Jones (Collection Manager)

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 35,000
VERTEBRATES 19,000
PLANTS 12,000

GEOLOGICAL AND MINING MUSEUM
34-64, George St., Sydney, N.S.W..2000. Tel.(02) 241 3662

PERSON IN CHARGE: J.W. Pickett

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 19,000
VERTEBRATES 1,000
PLANTS 10,000

QUEEN VICTORIA MUSEUM & ART GALLERY
Wellington Street, Launceston, Tasmania, 7250.

PERSON IN CHARGE: C.B. Tassell (Director) Tel. (003) 316777

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 7,000
VERTEBRATES 2,000
PLANTS 800

QUEENSLAND MUSEUM
Gregory Terrace, Fortitude Valley,
Queensland, 4006. Tel. (07) 522716

PERSONS IN CHARGE: M. Wade (Inverts.,Plants;)
R. Molnar (Vertebrates)

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 5,000
VERTEBRATES 30,000
PLANTS 1,000

SOUTH AUSTRALIAN MUSEUM
North Terrace, Adelaide, S.A.,5000 Tel. (08) 2238911

PERSON IN CHARGE: N.S. Pledge

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 30,000
VERTEBRATES 15,000
PLANTS 2,000

TASMANIAN MUSEUM
GPO Box 1164M (5 Argyle St.),Hobart,
Tasmania, 7001. Tel. (002) 232696

PERSON IN CHARGE: N. R. Kemp

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 2,000
VERTEBRATES 200
PLANTS 300

MUSEUM OF VICTORIA
DIvision of Nat.History & Anthropology,
285-321, Russel St.,Melbourne, Vic.,3000. Tel. (03)6699943

PERSONS IN CHARGE: P.A. Jell (Invertebrates);
T. Rich (Vertebrates)

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 2,000,000
VERTEBRATES 50,000
PLANTS 20,000

WESTERN AUSTRALIAN MUSEUM
Francis St., Perth, W.A.,6000. Tel. (09) 3284411

PERSON IN CHARGE: K.J. McNamara

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 500,000
VERTEBRATES 500,000
PLANTS 5,000

BUREAU OF MINERAL RESOURCES
G.P.O. Box 378, Canberra, A.C.T. 2601. Tel.(062) 499111

PERSONS IN CHARGE: E.M. Truswell & other members of
Palaeontological Group.
ESTIMATED NO. OF SPECIMENS
500,000 - 1,000,000

GEOLOGICAL SURVEY OF QUEENSLAND
G.P.O. Box 194, Brisbane, Q'ld.4001. Tel. (07) 2244980

PERSON IN CHARGE: R.J. Allen (Chief Government Geologist)

NO OF SPECIMENS NOT STATED.

Cont...

PALAEONTOLOGICAL COLLECTIONS IN AUSTRALIA (Cont'd).

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
Sth. Aust. Dept.. of Mines & Energy,
P.O. Box 151, Eastwood, S.A. 5063. Tel. (08) 272571.

PERSONS IN CHARGE: J.M. Lindsay, W.V. Preiss & B. J. Cooper.

ESTIMATED NO. OF SPECIMENS
- INVERTEBRATES 140,000
- VERTEBRATES 300
- PLANTS 6,000

GEOLOGICAL SURVEY OF TASMANIA
P.O.Box 56, Rosny Park, Tasmania 7018. Tel.(002) 303453

PERSON IN CHARGE: M.J. Clarke

ESTIMATED NO. OF SPECIMENS
- INVERTEBRATES 30,000
- PLANTS 5,000

GEOLOGICAL SURVEY OF WESTERN AUSTRALIA
66, Adelaide Terrace, Perth,
Western Australia, 6000. Tel. (09) 3250161

PERSON IN CHARGE: S.K. Skwarko

ESTIMATED NO. OF SPECIMENS
- INVERTEBRATES 5,000
- VERTEBRATES 10
- PLANTS 35,000

AUSTRALIAN NATIONAL UNIVERSITY
Dept. of Geology,
G.P.O. Box 4, Canberra, A.C.T.2601. Tel. (062) 492056

PERSON IN CHARGE: K.S.W. Campbell

ESTIMATED NO. OF SPECIMENS
- INVERTEBRATES 5,000
- VERTEBRATES 400

JAMES COOK UNIVERSITY
Department of Geology,
Townsville, Queensland,4811. Tel. (077) 814111

PERSON IN CHARGE: R.A. Henderson

ESTIMATED NO. OF SPECIMENS
- INVERTEBRATES 10,000
- VERTEBRATES 200
- PLANTS 500

MACQUARIE UNIVERSITY
School of Earth Sciences
North Ryde, N.S.W. 2113. Tel. (02) 8888000

PERSON IN CHARGE: R.J. Depledge

No. of specimens not stated.

UNIVERSITY OF MELBOURNE
Geology Dept., Parkville, Vic.,3052. Tel. (03) 3416520

PERSON IN CHARGE: G.W. Quick (Curator)

ESTIMATED NO. OF SPECIMENS
- INVERTEBRATES 20,000
- VERTEBRATES 400
- PLANTS 400

MONASH UNIVERSITY
Earth Sciences Dept., Clayton, Vic.3168. Tel. (03) 5413792

PERSON IN CHARGE: P.V. Rich

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 1,000
VERTEBRATES 500
PLANTS 20

UNIVERSITY OF NEW ENGLAND
Dept., of Geology & Geophysics,
Armidale, N.S.W. 2351. Tel. (067) 732860

PERSON IN CHARGE: G.R. Brown

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 100,000
PLANTS 5,000

Continued next page...

PALAEONTOLOGICAL COLLECTIONS IN AUSTRALIA (Cont'd).

UNIVERSITY OF NEW SOUTH WALES
School of Applied Geology.
Kensington, N.S.W. 2033. Tel. (02) 6622336

PERSONS IN CHARGE: A.N. Carter & J. Roberts

ESTIMATED NO. OF SPECIMENS
FORAMINIFERA 7,000
BRACHIOPODA +5,000

RIVERINA COLLEGE OF ADVANCED EDUCATION
School of Applied Science.
P.O.Box 588, Wagga Wagga, N.S.W. 2650. Tel.(069) 23254D

PERSONS IN CHARGE: K.G. McKenzie & D. Legg

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 500
PLANTS 5-10

UNIVERSITY OF QUEENSLAND
Geology Museum, Dept. Geology & Mineralogy,
St. Lucia, Queensland, 4067. Tel. (07) 3772668

PERSONS IN CHARGE: S. Dowling (Curator), J.B. Waterhouse,
J.S. Jell and G. Playford.

ESTIMATED NO. OF INDIVIDUALLY REGISTERED SPECIMENS

INVERTEBRATES 66,775
VERTEBRATES 1,500
PLANTS 5,000

UNIVERSITY OF SYDNEY
Dept., of Geology & Geophysics,
N.S.W. 2006. Tel. (02) 6922917

PERSONS IN CHARGE: G.M. Philip (Head of Dept.),B.D. Webby(Invt.)
J.A. Mahoney (Verts.)

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 58,000
VERTEBRATES 600
PLANTS 1,500

UNIVERSITY OF TASMANIA
Dept., of Geology, G.P.O.Box 252C,
Hobart, Tasmania, 7001. Tel. (002) 202101

PERSON IN CHARGE; M. R. Banks

ESTIMATED NO. OF SPECIMENS
INVERTEBRATES 40,000
VERTEBRATES 1,100
PLANTS 1,600

UNIVERSITY OF WESTERN AUSTRALIA
Dept. of Geology, Nedlands, W.A. 6009. Tel. (09) 3802681

PERSON IN CHARGE: D. Rhodes (Curator)

ESTIMATED NO. OF SPECIMENS: 30,000 (mainly invertebrates)

GEMBOREE'85 WANNEROO WESTERN AUSTRALIA - FOSSIL COMPETITIONS.

Members should note the following amendments to Sections:
Section 26A1 & A2. Fossils,Group of 6 Invertebrates, any origin.
Section 26A3 & A4. Fossils,Group of 6 Invertebrates, W.Aust. origin.